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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,349	03/12/2004	Xiangrong Liu	030807-144	5616
21839 7590 09/28/2007 BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER WEINSTEIN, STEVEN L	
			ART UNIT 1761	PAPER NUMBER
			NOTIFICATION DATE 09/28/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/798,349

Applicant(s)

LIU ET AL.

Examiner

Steven L. Weinstein

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-10 and 13-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-10 and 13-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3-10 and 13-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hankinson et al (2003/0198716), in view of Martin et al (5,912,034), or vice versa, i.e., Martin et al in view of Hankinson et al, further in view of Shenouda et al (4,814,193), Alderton (3,328,178), Creston Valley Foods (GB 1510883), and Allen (1,098,006), further in view of Martin et al (6,500,476), Beelman et al (5,919,507), Beelman et al (2003/0170354), Sapers et al (4,814,192), Farrier et al (4,011,348), and Reyes (6,159,512), essentially for the reasons given in the Office action mailed 2/13/07.

Claim 1 now recites that the produce being given a preserving treatment are mushrooms. However, as noted previously, it was well established to treat mushrooms, as well as all types of produce, to a preserving process including applying a high acid aqueous solution and then a buffered or alkali solution. Hankinson et al, and the art taken as a whole, discloses that this two step treatment, of all types of produce, was notoriously conventional. Note, too, that the art taken as a whole employed the two steps for the same reasons as applicant. That is, the high acidity of the first solution is employed as an anti-bacterial and the buffered or alkaline second solution is employed to neutralize the acid pH, which would otherwise have a deleterious effect on the produce, if left on the produce. Thus, applying Hankinson et al as the primary reference, Martin et al and the other secondary art can be relied on as further evidence of the

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conventionality of a two step process comprising an acid, anti-bacterial first step treatment and a neutralizing, second step treatment. Similarly, Martin et al, as well as the other references previously discussed in the last Office action, discloses a preservative anti-bacterial step followed by a neutralizing step, is notoriously conventional in the art. Claim 1 differs from Martin et al, and the art taken as a whole, in the recitation of the particular type of produce; i.e. mushrooms. As discussed above, and previously, it was notoriously conventional to also treat mushrooms to the preservative process of acidifying and neutralizing. To modify martin et al and the combination and substitute one conventional produce known to be treated with acid and then neutralized, for another conventional produce known to be treated with acid and then neutralized, would therefore have been obvious. Claims 1 and 29 now recite that the contact with the first aqueous (acidic) solution is for about 15-60 seconds. As noted in the last Office action, since the art taken as a whole discloses both steps for their art recognized and applicant's intended function, thus, teaching applicant's problem and solution, the specific time for the conventionally recognized variable of acid treatment, would have been an obvious result effective variable, routinely determinable, and optimizable.

All of applicant's remarks filed 7/11/07 have been fully and carefully considered but are not found to be convincing. The bulk of applicant's urgings are based on the conclusion that Hankinson et al teaches away from employing a first aqueous solution having a pH adjusting agent effective to adjust the pH to about 1.5 to 4.5. The urging is not convincing. The fact that Hankinson et al sees disadvantages with the prior art

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conventional antibacterial techniques, and discloses, as his contribution to the art, a different conventional antibacterial technique, does not negate the prior art disclosed in Hankinson et al. It is the discussion in Hankinson et al of an antibacterial treatment employing acid conditions and then neutralization that is being employed as the primary teaching, and not the use of O<sub>3</sub> and/or U.V., which are disclosed by Hankinson et al as a chemical free alternative to the acidic and basic solutions of the prior art. Note, too, a "teaching away" urging usually requires that the primary reference would indicate the modification would not work. Hankinson et al does not disclose that acid treatment followed by neutralization as an antibacterial step will not work. On the contrary, Hankinson et al clearly discloses such conventional antibacterial treatments will work. Hankinson et al does disclose that such chemical treatments can be expensive, may present a danger to workers and may be a pollution problem, and his antibacterial treatment minimizes or eliminates these issues. Note, too, that the potential issues noted by Hankinson et al, in using the prior art antibacterial treatment, would be equally shared by applicants antibacterial treatment. Therefore, the prior art disclosure in Hankinson et al, which is what is being relied on, and even Hankinson et al's contribution to the art, does not teach away from the invention, but only describes potential disadvantages of the particular antibacterial treatment. It is interesting to note that although Hankinson et al has some chemically related issues with the acid antibacterial treatment of the prior art, Hankinson et al does not appear to have such concerns for the second step antibrowning treatment which employs Na erythorbate, di-Na EDTA, CaCl<sub>2</sub>, NaCl, and ascorbic acid.

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On page 13 of the amendment, it is urged that Martin et al ('034) fails to disclose or suggest preserving mushrooms. Martin et al does not have to specifically disclose mushrooms for the rejection to be proper. Martin et al is not being applied alone, under 35USC102, anticipation, but rather in combination, under 35USC103, obviousness. It is urged that mushrooms are "unique" in their surface characteristics and sensitivities to treatment chemicals. This urging appears to be a statement of opinion, not supported by factual evidence. In fact, the art appears to disclose that mushrooms share the same problems common to all produce, including browning and bacteria problems, as well as a sensitivity to chemicals. At best, the characteristics are a matter of degree, not kind. On page 12 of the amendment, Martin et al is further argued as if it was applied alone. The art, taken as a whole, discloses acid treatment as an antibacterial treatment for produce, including mushrooms, (as well as other foods) was notoriously conventional, that it was conventional to then neutralize the acidic, antibacterial treatment, and that it was conventional to include an antibrowning treatment, including the recited chemicals. Also, although the disclosure in Martin et al is specific to potatoes, the problem of browning and degradation is not, as evidenced by the art taken as a whole. The rejection also states that since the art taken as a whole discloses the steps and the additives are conventional, the particular process variables to achieve the art disclosed antibacterial and antibrowning effects, would therefore have been obvious result effective variables. Note, too, that Hankinson et al points out that mushrooms, because they are white, ages and turn brown, whether they are cut or not, that browning and product deterioration are governed by enzymatic processes and cellular degradation

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and is a problem for all produce, that the rate of degradation is a function of the type of produce, the amount of innate enzyme, temperature, bacterial levels, water exposure, etc., that if an antibacterial acid treatment is not neutralized, residual acidity can result in damaged tissue, that solutions can be applied by spraying or immersion, followed by a water rinse, and it is beneficial to minimize the exposure of produce, including mushrooms, to water and chemical uptake by minimizing residence time in the solution and maximize the effectiveness of the treatment solution.

On page 14 plus of the amendment, Shenouda et al and the other secondary art are discussed. These references are being relied on as further evidence of acid treatment followed by a basic, neutralization treatment. It is urged that Shenouda et al discloses a pH shock treatment, and thus does not neutralize. However, Shenouda et al, in their discussion of the prior art, discloses antibacterial treatments employing acid and then base to neutralize, is, of course, a notoriously conventional food preserving treatment. In regard to the other secondary art, as noted above, these references are only being relied on to teach the conventionality of neutralizing an acid treatment. The secondary art does not have to teach mushrooms or other specifics for the rejection to be proper, nor do the claims rule out other steps that the remarks urge are disclosed by these references. Finally, in regard to Martin et al ('476), Beelman et al ('507), etc., as noted in the last Office action, these references are only being relied on as further evidence of the wide use of chelating agents and antioxidants in produce preservation methods. They are not being relied on for their sequence of steps, nor do they have to

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teach the recited sequence for the rejection to be proper, since the sequence of acid and then base treatment is taught by the art taken as a whole.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven L. Weinstein whose telephone number is 571-272-1410. The examiner can normally be reached on Monday-Friday 7:00 A.M.-2:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Steve Weinstein*  
STEVE WEINSTEIN  
PRIMARY EXAMINER 1761  
9/24/07